**AE/ME 6760: Acoustics I**

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| Credit Hours: | 3-0-3 |
| Prerequisites: | Math 2403 or MATH 2413 or MATH 24X3 or equivalent |
| Catalog Description: | Fundamental principles governing the generation, propagation, reflection, and transmission of sound waves in fluids. |
| Textbooks: | Allan D. Pierce, *Acoustics: Introduction to Physical Principles and Applications*, 1st Edition, Springer-Verlag, 1989 (an Acoustical Society publication). |
| Goals: | The goal of this course is to expose students to an in-depth understanding of the fundamental principles governing the generation, propagation, reflection, and transmission of sound waves in fluids. |
| Topics: | * Fundamentals * Governing equations * Sound speed * Energy, intensity * Coherent and incoherent sound sources * Acoustic power * Plane, spherical sound waves * Spectral analysis, decibels, frequency weighting * Reflection and Transmission of sound waves * Acoustic impedance * reflection/transmission between two fluids * reflection at an impedance boundary * standing wave tube * radiation from a vibrating infinite plate * transmission through a wall, a layer * Ideal sources * pulsating sphere, translating sphere * monopoles, dipoles, quadrupoles * multipole expansions, spherical harmonics |